Addressing Structural Barriers to High School Graduation:

Examining the Impacts of the Éxito program at Kensington Creative and Performing Arts

JANUARY 2022

RESEARCH FOR ACTION

CONGRESO
Strengthening Latino Communities

About Research for Action

Research for Action (RFA) is a Philadelphia-based nonprofit organization. We seek to use research as the basis for the improvement of educational opportunities and outcomes for traditionally underserved students. Our work is designed to strengthen public schools and postsecondary institutions; to provide research-based recommendations to policymakers, practitioners, and the public at the local, state, and national levels; and to enrich the civic and community dialogue about public education. For more information, please visit our website at www.researchforaction.org.

About Congreso de Latinos Unidos

Congreso de Latinos Unidos, Inc. (Congreso) is a 501(c)3 nonprofit organization founded in 1977 with a mission to enable individuals and families in predominantly Latino neighborhoods to achieve economic self-sufficiency and well being. Headquartered in Philadelphia, Pennsylvania, Congreso is a leading provider of high-quality programs with an expert focus on the Latino community. Its Primary Client Model (PCM™), which ensures a client-centered, data-driven approach to service delivery, is the foundation for Congreso's nationally renowned emphasis on outcomes measurement.

Acknowledgments

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Executive Summary

Introduction

Earning a high school diploma is a milestone that has been linked to many later life outcomes, from employment to incarceration to physical health, and impacts society as a whole through tax revenues and government spending.[1] Yet, youth leaving school prior to obtaining a diploma remains a challenge nationwide, particularly in large cities. The School District of Philadelphia (SDP) has had dropout rates of over 5% for each of the past three years, translating to more than 3,000 students per year.[2]

Given the importance of a high school credential, many interventions have been tested to curb school-leaving and support students through graduation. The most promising include interventions that address structural barriers like poverty, under-resourced schools, and lack of academic supports/ guidance with some of the following: early identification, mentoring or the formation of other genuine adult relationships, personalization and assistance with student-specific needs (e.g. academic remediation, basic needs, behavioral support), and a focus on the transition to high school.[3]

Congreso's Éxito program, the focus of this report, includes many of the characteristics recommended by the literature on school-leaving and is characterized by: targeted recruitment of youth with Early Warning Indicators (EWIs), an afterschool program with a supportive climate that offers relevant, hands-on activities and tutoring, case management services provided to a subset of students, and a robust school partnership and presence of the program in the school.

The Éxito program was first implemented at Edison High School in 2008-09 and after a promising five-year study at that location, it was expanded to another SDP high school, Kensington Creative and Performing Arts (Kensington CAPA or KCAPA) with the goal of reaching more students with its afterschool and case management programming. This report focuses on the impact the Éxito program had on participating students at KCAPA who started high school in 2016-17 and examines their outcomes through 2019-20, what should have been their senior year.

1 Wilkins, J & Bost, Loujeania W. Dropout Prevention in Middle and High schools: From Research to Practice.; Belfield, C., & Levin, H. M. (2007). The price we pay: Economic and social consequences of inadequate education. Washington, DC: Brookings Institution.; Sanford, C., Newman, L., Wagner, M., Cameto, R., Knokey, A. M., & Shaver, D. (2011). The post-high school outcomes of young adults with disabilities up to 6 years after high school. Key Findings From the National Longitudinal Transition Study-2 (NLTS2)(NCSER 2011-3004). Menlo Park, CA: SRI International. Neild, R. C. & Balfanz, R. Unfulfilled Promise: The Dimensions and Characteristics of Philadelphia's Dropout Crisis, 2000-2005. (2006).; Levin, Henry & Belfield, Clive & Muennig, Peter & Rouse, C.. (2006). The Costs and Benefits of an Excellent Education for America's Children.
2 https://www.education.pa.gov/DataAndReporting/Dropouts/Pages/default.aspx
3 Wilkins & Bost, 2015; Mac Iver, M.A. (2011). The Challenge of Improving Urban High School Graduation Outcomes: Findings from a Randomized Study of Dropout Prevention Efforts. Journal of Education for Students Placed at Risk (jespar). 16. 167-184. 10.1080/10824669.2011.584497.

Research Design

The focus of the final year of this 4-year evaluation was to understand the impacts of the Éxito program. The study was guided by the following research questions:

1. Over the 4 years of the study, how many students participated in the Éxito program at KCAPA and to what degree?
2. Were students in the KCAPA Éxito program doing better academically and behaviorally than a matched comparison group of students?
3. How did program dosage influence academic and behavioral outcomes?
4. Were program participants with Early Warning Indicators (EWI) less likely to leave school without a diploma than a matched comparison group of students with EWI who were not participating in the program?

To answer these questions, RFA leveraged a quasi-experimental design to understand the degree of student participation in the Éxito program and the impact the program had on academic and behavioral outcomes at KCAPA. To examine program impacts we defined the treatment group as students who began high school in 2016-17 (i.e. the graduating class of 2020), the same year that Éxito program began providing services at KCAPA, and who participated in Éxito (including those who enrolled in KCAPA as sophomores, juniors, and seniors). To be included in the treatment group, students must have either attended the afterschool program, received case management supports, or both. The comparison group for these analyses was drawn from students from the preceding two cohorts of ninth graders that attended KCAPA (as well as students who joined those cohorts in 10th or 11th grade).

To account for possible bias stemming from the fact that students self-selected into the program, and therefore, the treatment group, we used propensity score matching to identify a comparison group for our analysis. We matched students in two groups using observable demographic variables (gender, race/ethnicity, low-income status) as well as the number of years the student attended KCAPA, plus additional variables where sample size allowed (i.e., English Learner status, IEP status, and being over age for grade in 9th grade). While propensity score matching is strongest when conducted using a baseline measure of the outcome of interest, [4] we were unable to use any academic or behavioral data in our matching algorithm due to high rates of missingness of students' middle school records. This missingness, as well as the small sample size (75 treatment records were included in the impact analyses), are key limitations of this study.

Findings

Participation rates lagged behind initial expectations, both in number of students and intensity of participation**, but at least a third of students had sustained participation over multiple years**. Specifically:

- Over the four years of the study, 105 students participated in Éxito, a group that mostly reflected school's overall demographic characteristics. Participation averaged around 30 students per year—about a quarter of the target cohort.
- Half of the participants (56 students or 53%) had at least some case management contacts, with the remainder only participating in the afterschool program. Case management students were more often Hispanic, female, and English Learners compared to students who only participated in the afterschool program.

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4 Steiner, P. M. & Cook, D. Matching and Propensity Scores. The Oxford Handbook of Quantitative Methods in Psychology 1, (2013).

- Though most Éxito students (64%) participated only during a single year and nearly half (44%) for 25 or fewer times over the course of four years, a core contingent of students had strong participation. One-third of participants (35 of 105) had more than 100 touchpoints. More than one-third of participants (36%) had at least two years of participation.

Éxito participants had significantly higher graduation and on-track rates and better credit accumulation compared to matched comparisons, but **no significant impacts were found on rates of school-leaving or GPAs and minimal impacts were detected on behavioral outcomes**.

- Participating students were 15 percentage points more likely to graduate by the end of the study period and 14-25 percentage points more likely to be on track in each year of high school, compared to similar non-participating peers.
- Participating students accumulated significantly more credits in English and math over each of the first three years of high school. After 3.5 years of high school, the credit accumulation difference narrowed and was no longer significant
- No significant impacts were detected on rates school-leaving or GPAs earned in English and math.
- Participating students had attendance rates nearly 6 percentage points higher than comparison students in their second year of high school, but there were no significant differences in attendance rates in all other years. There was no significant difference in suspension rates between the two groups.

Students with more participation saw more improved outcomes compared to non-participants and case management had a larger effect on student outcomes than afterschool attendance alone. These subgroup analyses, in particular, should be interpreted cautiously, since they are particularly constrained by the small sample size.

- Compared to non-participants, moderate and high Éxito participants had significantly higher rates of being on-track and of credit accumulation through three years of high school. Graduation rates were also 19-36 percentage points higher, but the differences were only significant for students with high or very high participation in Éxito.
- Students who only participated in Éxito a few times had outcomes that were not statistically or substantially different from non-participants.
- Case management appeared to have the strongest impact on on-track rates, with students receiving the services having significantly higher rates of being on-track than comparison students (20% higher after 3 years, 29% higher after 3.5 years). Afterschool only participants, in contrast, had rates that were similar to and not statistically different from the control students.
- Both case management students and afterschool program students had higher rates of graduation than their matched comparisons, but the difference was only statistically significant for case management students.
- In all other academic and behavioral outcomes, including school-leaving rates, attendance, and receipt of suspensions, case management and afterschool participants had similar outcomes to comparison students or the differences were inconsistently significant across years.

Éxito was highly effective at getting students back on track to graduation after falling off track during their first year of high school.

- Narrowing the gap in graduation rates of off-track students, off-track Éxito students were 37 percentage points more likely to graduate on time, compared to the matched comparison students who were also off track.
- On-track Éxito participants had graduation rates that were not statistically different from a matched comparison group of non-Éxito on-track peers.

Recommendations

These results show that the Éxito program is a promising model to affect high school graduation rates and address some of the systemic barriers that cause students to leave school prior to graduation. Participants showed significantly higher graduation rates, compared to matched comparison students in the two preceding cohorts at the same school. Participants also saw better outcomes in measures directly tied to graduation, like on-track rates and credit accumulation. Minimal or no impacts were found upon measures of GPA, school-leaving rates, attendance, and receipt of suspensions.

Because of the patterns seen in the studied cohorts, we recommend the following:

- **Look for opportunities to expand the Éxito program in current and additional schools.** When identifying new schools for implementation, Congreso should prioritize schools with high rates of students who are off-track after their first year of high school, as this is a strong indicator of risk of leaving school and we found that the risk was greatly reduced among Éxito participants. Given the small sample size in this study and the previous one and the relatively small cohort size of the Kensington CAPA school, expanding to additional schools and tracking the impacts of the program could help to further the case that Éxito positively impacts graduation rates.
- **Maintain a focus of the program on case management supports.** Our findings show that case management participation had a larger impact on student outcomes than afterschool participation alone. Continuing to support students through afterschool programming while maintaining a specific focus on case management would be the best approach to build on the positive results seen at Kensington CAPA and previously at Edison High.
- **Value depth of participation over breadth of participants.** We also found stronger effects for students with higher degrees of participation. The difference in impacts between those who attended just a few days and those who attended more was striking and highlights the need to focus on intensity of participation more than enrolling large numbers of students.

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Prepared by *Research for Action* • January 2022

Introduction

Earning a high school diploma is a milestone that has been linked to many later life outcomes. Young people who leave school prior to obtaining a diploma have more trouble finding and maintaining employment, earn lower wages, are more likely to be incarcerated, and are more often in poor health compared to their peers who graduate from high school.[5] Clearly of importance to the individual, graduation rates should also be of high importance to the general public. According to a 2007 cost-benefit analysis, researchers found that "each new high school graduate would yield a public benefit of $209,000" based on higher incomes leading to higher tax revenues and lower government spending on things like unemployment and incarceration.[6]

Yet youth leaving high school is still an issue nationwide, particularly in the nation's largest cities[7] like Philadelphia. According to PA Department of Education data, the School District of Philadelphia has had dropout rates over 5% for each of the past 3 years (compared to the state-wide rate of less than 2%).[8] Given the size of the school district, that translates to more than 3,000 students each year and more than 20% of the young people leaving high school statewide.

Many interventions have been tested to curb leaving school and support students through graduation. The most promising include interventions that address structural barriers like poverty, under-resourced schools, and lack of academic supports/ guidance with some of the following: early identification, mentoring or the formation of other genuine adult relationships, personalization and assistance with student-specific needs (e.g. academic remediation, basic needs, behavioral support), and a focus on the transition to high school.[9] Congreso's Éxito program, the focus of this report, displays many of these characteristics, as described in more detail below.

Congreso's Éxito Program

Congreso's Éxito program was first launched at Edison High School in 2008-09 with the goal of reducing the school's high rate of students leaving without a diploma and increasing graduation rates. In line with the literature on preventing school-leaving, the design of the program is characterized by the following key elements (more detail about each element is provided in the box that follows):

5 Wilkins, J & Bost, Loujeania W. Dropout Prevention in Middle and High schools: From Research to Practice.; Belfield, C., & Levin, H. M. (2007). The price we pay: Economic and social consequences of inadequate education. Washington, DC: Brookings Institution.; Sanford, C., Newman, L., Wagner, M., Cameto, R., Knokey, A. M., & Shaver, D. (2011). The post-high school outcomes of young adults with disabilities up to 6 years after high school. Key Findings From the National Longitudinal Transition Study-2 (NLTS2)(NCSER 2011-3004). Menlo Park, CA: SRI International. Neild, R. C. & Balfanz, R. Unfulfilled Promise: The Dimensions and Characteristics of Philadelphia's Dropout Crisis, 2000-2005. (2006).
6 Levin, Henry & Belfield, Clive & Muennig, Peter & Rouse, C.. (2006). The Costs and Benefits of an Excellent Education for America's Children.
7 Swanson, C. Cities in Crisis: A Special Analytic Report on High School Graduation. (2008).
8 https://www.education.pa.gov/DataAndReporting/Dropouts/Pages/default.aspx
9 Wilkins & Bost, 2015; Mac Iver, M.A. (2011). The Challenge of Improving Urban High School Graduation Outcomes: Findings from a Randomized Study of Dropout Prevention Efforts. Journal of Education for Students Placed at Risk (jespar). 16. 167-184. 10.1080/10824669.2011.584497.

1. Targeted recruitment of youth with Early Warning Indicators (EWIs) for leaving school prior to graduation
2. An afterschool program that has a supportive climate and offers relevant, hands-on activities and tutoring
3. Case management provided to a subset of participants identified as facing extensive barriers or showing EWIs for leaving school prior to graduation
4. A robust school partnership and presence of the program in the school

In addition, while not codified elements of the model, afterschool program activities at Edison were characterized by cultural relevance, and staffing included a number of bilingual staff to serve the English Learner (EL) population in this high school.

Description of the Éxito Program Implementation

Key elements	Description of the element when fully implemented
Recruitment	Open enrollment AND targeted recruitment of youth with Early Warning Indicators (EWIs) for leaving school prior to graduation
Supportive program climate	• Quality, caring staff with a low student-staff ratio (no more than 15:1). Staff included a program manager, a full-time case manager, and "club leaders" who facilitated enrichment programs. • Dedicated time in the program for informal gathering and relationship building.
Relevant, hands-on activities in the afterschool program	• Student choice among activities that offer real-world connections. • Project-based learning opportunities.
Tutoring offered in the afterschool program	• Homework assistance offered at least weekly in small groups (maximum 9:1 student:tutor ratio). • Tutoring offered in a space separate from the program activities.
Case management	• Full-time case manager who was a trained social worker • Partnership between the case manager, the afterschool staff, and school-day staff to identify student case management needs • Persistent engagement with case management students (at least twice a week with 75% of the caseload). • Engagement with the family of students and providing home and school visits as needed. • Regular presence of the case manager at afterschool activities to foster relationships with non-caseload students.
School/Program partnership	• Afterschool activities take place in the school and program staff maintain a presence in the school building during the school day. • High-quality and supportive relationships between program staff and the school's teachers and principals.

Evidence Base and Program Adaptations and Fluctuations at Kensington CAPA

From 2008-09 to 2012-13, RFA conducted a five-year study of the Éxito program's impact on graduation and school-leaving at Edison High School in Philadelphia. This study documented promising results of higher graduation rates and lower departure rates of students who participated in Éxito compared to non-participating students. [10]

These promising results lead to the replication of the program at another Philadelphia high school, Kensington Creative and Performing Arts (Kensington CAPA or KCAPA). Beginning in the fall of 2016, Congreso replicated the Éxito program at Kensington CAPA by integrating the initiative into an existing afterschool program that served students in grades 9-12. While the afterschool program was offered to all grades, the Éxito services and case management was focused on the Class of 2020 (those that started 9th grade in 2016-17 and those that joined the cohort in later years).

Éxito Program Adaptations Related to Eligibility and Recruitment at KCAPA

Compared to Edison, there was a smaller population of students with EWIs to specifically target for the Éxito program at Kensington CAPA. First, Kensington CAPA is a much smaller school in terms of enrollment (one-third the total population and one-half the 9th grade cohort size, as of 2016-17). In addition, Kensington CAPA has lower rates of incoming students with EWIs (50% of incoming students at Edison had an attendance EWI, compared to 38% at KCAPA; 26% of incoming students at Edison compared to 6% at KCAPA had a behavioral EWI). Because of the narrower group at KCAPA that would be identified to participate based on EWIs, Congreso broadened recruitment to students without EWIs when replicating at Kensington CAPA. However, students with EWIs remained a priority group for recruitment and participation in Éxito. Furthermore, in the first year, the school principal specifically referred ELs to the program due to its bilingual staff.

When implemented at Edison, the Éxito program exclusively worked with students in 9th and 10th grades. However, one of the key findings of the RFA study at Edison was that the program effects on "near dropout" rates waned after students exited the Éxito program.[10] In an attempt to stave that decline, Congreso adapted the model when replicating at Kensington CAPA to support students throughout all four years of high school.

Supporting students in 11th and 12th grades required further adaptation at Kensington CAPA when Congreso learned that upperclassmen were released early from classes if they had earned sufficient credits. Offering support through an afterschool program that started at the conclusion of a full school day was no longer accessible to students who left school earlier. Congreso adapted by offering a "mini-OST" program in which students could work together on assignments with the program's case manager and other students when their classes ended for the day. Éxito staff members reported that the afterschool component became even more important to some youth in later years when they were seeking support with academics, college and career preparation.

Year-to-Year Program Fluctuations at KCAPA

Program implementation also fluctuated year-over-year, with some components being fully implemented in some years but not others. For example, due to turnover in the case management role, there was a period towards the end of the 2017-18 school year when no case management was offered. The service resumed at the start of the next school year when an existing afterschool staff member moved into the case manager role. With the exception of the original case manager, other key staff remained consistent facilitating deep connections with participating youth. Another change during the course of implementation was that

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10 Leow, C., Hartmann, T., & Barnes, M. (2014). On Track to Success: The Fifth Year Evaluation of Congreso's Éxito™ Program. Philadelphia, PA: Research for Action.

academic supports were limited in the first year. When early implementation findings that found that these supports were not meeting desired targets, those services were prioritized in later years of the program.

The COVID-19 pandemic hit the US during the last three-and-a-half months of the program study period, shutting down schools and businesses across the country in March 2020. As KCAPA transitioned to remote schooling, Éxito staff adapted the afterschool program to be conducted fully online. The case manager also reached out to all students who had been on the caseload throughout the school year to provide support and to maintain contact via calls and texts. To isolate the outcomes being studied from any impact the pandemic might have had on student performance (e.g. 4th quarter grades were not given, attendance and suspension policies might have changed in a remote schooling format), we used outcome measures through the first semester of the students' fourth year of high school (e.g. January 2020 for the target cohort), instead of end of year measures.

Research Questions and Study Design

The goal of this study was to assess the effectiveness of the Éxito program in the new environment at Kensington CAPA. To do this, Research for Action (RFA) conducted a four-year, mixed-methods study of the program. The research unfolded in two phases.
- Phase 1: The first two years focused on questions of program implementation, and formative feedback based on this research was shared with Congreso each year.
- Phase 2: In years 3 and 4, the study shifted to focus more on quantitative analyses of student participation and outcomes, comparing participating students to a comparable group of non-participating students.

This section outlines the research questions and study design focused on quantitative analyses of participation and outcomes.

Research Questions

This final year report was guided by the following research questions:
1. Over the 4 years of the study, how many students participated in the Éxito program at KCAPA and to what degree?
2. Were students in the KCAPA Éxito program doing better academically and behaviorally than a matched comparison group of students?
3. How did program dosage influence academic and behavioral outcomes?
4. Were program participants with Early Warning Indicators (EWI) less likely to leave school without a diploma than a matched comparison group of students with EWI who were not participating in the program?

Study Design

RFA leveraged a quasi-experimental design to estimate the effect of the program on participants. To examine program impacts, we defined the treatment group as students who began high school in 2016-17 (i.e. the graduating class of 2020), the same year that Éxito program began providing services at KCAPA, and who participated in Éxito at KCAPA (including those who enrolled in KCAPA as sophomores, juniors, and seniors). To be included in the treatment group, students must have either attended the afterschool program, received case management supports, or both. A total of 105 students met these criteria and comprised the treatment group.

The comparison group for these analyses was drawn from students from the preceding two cohorts of ninth graders that attended KCAPA (as well as students who joined those cohorts in 10th or 11th grade). We chose these cohorts as appropriate cohorts from which to draw comparisons, because, as shown in Table 1, these three cohorts looked similar at the start of high school with respect to demographic characteristics and rates of being on track to graduation at the end of 9th grade.

Table 1. Demographic characteristics of the three cohorts of KCAPA students used in this study

The percentage of students in each cohort who were	9th grade cohort in (including cohort joiners)		
	2014-15 (N=234) (Comparison)	2015-16 (N=234) (Comparison)	2016-17 (N= 239) (Treatment)
Female	51%	54%	46%
Hispanic, Non-White	59%	55%	56%
African-American	33%	35%	38%
English Learners	15%	13%	17%
On track at the end of 9th grade	55%	53%	53%

Because treatment students were self-selecting into the treatment condition (by participating in Éxito), there could be some inherent, systematic bias in the population of students in the treatment versus the comparison group. To account for that possible source of bias, we matched treatment students to students from the comparison group using propensity score matching.[11] Propensity score matching is a standard technique in education research to adjust for observable imbalance between participating and non-participating students so that a comparison of their outcomes can yield unbiased estimates of the impact of programs.

We identified matches for students in two separate groups: (a) students who entered KCAPA in 9th grade (N=66) and (b) students who entered KCAPA in 10th or 11th grade (N=9). We chose to identify matches separately for these two groups because students who transfer schools during high school have an increased risk of not graduating on time, making them systematically different from those who started at KCAPA in 9th grade.

For both sets of students, we identified several variables as suitable for matching criteria: race/ethnicity, gender, low-income status,[12] and the total number of years the student was enrolled at KCAPA.[13] Given the larger sample size, we were able to use additional matching characteristics for the students who entered KCAPA in 9th grade, specifically: English Learner status, IEP status, and being over age for grade in 9th grade. High rates of missingness among 8th grade EWI data (attendance rate, any suspensions, any failures in math or English courses) prevented us from using those as matching characteristics, a challenge which is discussed in more detail in the limitations section below.

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11 Caliendo, M. & Kopeinig, S. (2008). Some practical guidance for the implementation of propensity score matching. Journal of Economic Surveys, 22(1), 31-72.; Ho, D. E., Imai, K., King, G., & Stuart, E. A. (2007). Matching as nonparametric preprocessing for reducing model dependence in parametric causal inference. Political Analysis, 15(3), 199-236

12 Based on receipt of public assistance through Temporary Assistance for Needy Families (TANF), Supplemental Nutrition Assistance Program (SNAP), Medicaid, or other social service programs. While this measure identifies the most economically disadvantaged students, it underestimates the number of students living at or close to poverty compared to the previously available Free and Reduced Price Lunch eligibility measures.

13 These variables were selected as matching variables because literature suggests students' demographic and socio-economic characteristics are significant factors affecting student outcomes (Swanson, C. B. (2009) *Closing the Graduation Gap*.; Hammond, C., Linton, D., Smink, J. & Drew, S. *Dropout Risk Factors and Exemplary Programs: A Technical Report*. http://eric.ed.gov/PDFS/ED497057.pdf (2007)). The number of years enrolled at KCAPA variable can be a proxy variable for student mobility. Studies also show that student mobility negatively affects student learning (Institute of Medicine. (2010). *Student Mobility: Exploring the Impacts of Frequent Moves on Achievement: Summary of a Workshop*. Washington, DC: The National Academies Press; Mehana M., & Reynolds A.J. (2004). School mobility and achievement: A meta-analysis. *Children and Youth Services Review, 26*:93–119; Rumberger R. (2003). The causes and consequences of student mobility. *Journal of Negro Education, 72*:6–21.).

Among the 105 students who ever participated in Éxito from the target cohort, 77 had conclusive data on their ultimate graduation or departure status at the end of the four-year study.[14] One of the 77 transferred to KCAPA in 12th grade, and thus was excluded from matching. One additional student was dropped because we did not find a match for the student in the comparison cohorts. All remaining students had matched comparisons from the comparison cohorts, thus 75 treatment students and their matched comparisons were used in the impact analyses. Table 2 shows that the demographics of the participants who were included in the impact analysis closely resembles those of all Éxito participants and those of the matched comparison students.

Table 2. Demographic characteristics of all participants and of students included in the impact analysis

| | | Impact analysis sample | |
The percentage of students in each group who were	All participants (N=105)	Participants included in impact analysis (N=75)	Control students selected through PSM (N=75)
Female	48%	53%	56%
Hispanic, Non-White	60%	64%	65%
African-American	37%	33%	32%
English Learners	22%	24%	21%
Receiving Special Education services	21%	23%	21%

Once matching was complete, we used linear and logistic regression modeling (for continuous and dichotomous outcomes, respectively) to estimate the impact of the Éxito program on academic and behavioral outcomes among the matched samples. The outcomes studied and their definitions are provided in the table below. More detail about our modeling approach can be found in Appendix A.

Table 3. Outcome measures

Outcome Measure	Definition
Academic outcomes	
Graduating on time	Graduating high school within 4 years of entering
Leaving school prior to graduating	Having a record of leaving school without returning and prior to graduating.
On-track to graduation	Being on-track to graduation according to the School District of Philadelphia's definition for how many credits in each subject area a student should have earned by the end of each year of high school.[15]
Credits accumulated in English and math	Cumulative number of credits earned in high school English and math courses
GPA in English and math courses	Cumulative Grade Point Average earned in high school English and math courses, on a 4.0 scale
Behavioral Outcomes	
Attendance rate	Percentage of enrolled days a student attended in a given school year
Receipt of any suspensions	Cumulative measure of if a student received any suspensions in high school

Limitations

This study design rests upon propensity score matching as a method of identifying an appropriate comparison group. However, the matching was constrained in two ways: 1) missing data, particularly in

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14 Students without conclusive graduation/school-leaving status are those who: (a) transferred out of the School District of Philadelphia, or (b) finished a school year normally but did not return to the district in the next year. Students in the latter category could have dropped out or could have transferred to a school outside of Philadelphia public schools, but there was no way to determine which case was true from available administrative records.

15 https://www.philasd.org/research/wp-content/uploads/sites/90/2018/08/Suggested-Credit-Totals-by-Grade.pdf

baseline measures from students' middle school years, and 2) small sample size. More than half (53%) of treatment students used in the impact analysis did not have data from their 8th grade academic achievement or behavioral outcomes. If available, that data would have been key variables to use in matching, since they are known to be strong predictors of high school performance and propensity score matching is stronger when matching is done using a baseline measure of the outcome of interest.[16] Compounding the challenge of missing data is the fact that the sample used for analysis was small, which meant we were limited in the number of variables we could use for propensity score matching, particularly for those students who joined KCAPA in 10th or 11th grades. These limitations mean that the impacts reported here should be interpreted with caution as they may be at least partially attributable to unmeasured differences between the treatment and control groups. Future research could overcome these challenges by expanding the sample size of the treatment group, collecting 8th grade report card data directly from students as a condition of enrollment, or considering if a randomized approach to treatment is possible.

Findings

Who participated in the Éxito program? When? And for how long?

This report focuses primarily on the potential impact of the Éxito program on participating students' academic and behavioral outcomes. But it starts with a review of who those participants were and the degree to which they interacted with the program.

Over the four years of the study, 105 students participated in Éxito, a group that mostly reflected school's overall demographic characteristics

Table 4 below shows the demographics of all Éxito participants, compared to those of the entire KCAPA population. It also breaks down the demographics of participating students who received case management services compared to those who only participated in the afterschool program.

Table 4. Demographic characteristics of Éxito participants, overall and by participation type, compared to the student body at KCAPA in 2019-20

The percentage of students in each group who were	All Éxito Participants (N=105)	Entire KCAPA Population in 2019-2020 (N=522)	Éxito participants by type of participation	
			Afterschool program only (N=49)	Afterschool plus case management[17] (N=56)
Female	48%	48%	43%	52%
Hispanic, Non-White	60%	60%	53%	66%
African-American	37%	30%	43%	32%
English Learners	22%	19%	16%	27%
Receiving Special Education services	21%	26%	22%	20%

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16 Steiner, P. M. & Cook, D. Matching and Propensity Scores. The Oxford Handbook of Quantitative Methods in Psychology 1, (2013).

17 Nearly all case management students also attended the afterschool program, in fact only one of the 56 case management students did not attend any afterschool programming.

Table 4 shows:
- Half of the participants (56 students or 53%) had at least some case management contacts, with the remainder only participating in the afterschool program.
- The demographics of all Éxito participants largely matched those of the overall school population.
- Case management students were more often Hispanic, female, and EL compared to students who only participated in the afterschool program.

Participation averaged around 30 students per year—about a quarter of the 2016-17 ninth grade cohort.

Students were allowed to join the Éxito program at any time during their high school years at Kensington CAPA. Figure 1 below illustrates how many of the 2016-17 ninth grade cohort participated in each year of the study and when participants first joined the program. In the figure, "support contact" participants are students who attended only a few days of the program towards the first year, in order to become eligible for summer jobs. Some of those "support contact" participants returned to participate in the program again in later years.

Figure 1. Éxito participants by year and participant type, 2016-17 through 2019-20
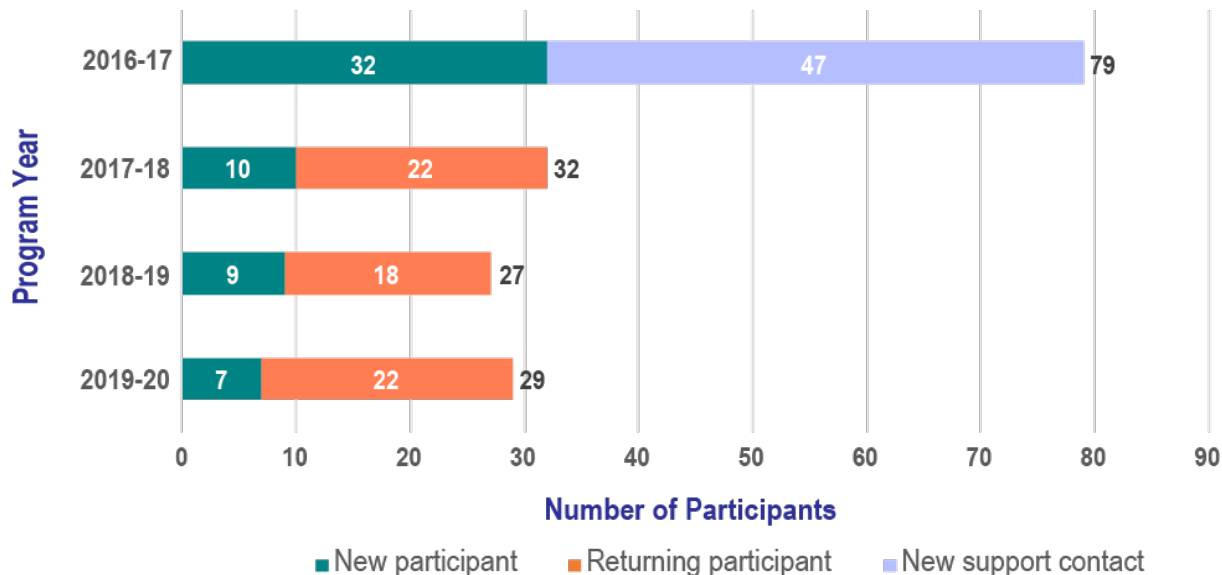
Note: Data source: Éxito program participation data, compiled by Congreso

Figure 1 shows:
- **Participation was highest in 2016-17**, the first year that Éxito was implemented at KCAPA and the first year of high school for the target cohort. However, many of the participants in 2016-17 were "support contact" participants, meaning they only had very limited participation in their first year and were motivated to join to become eligible for summer jobs. As explained above, some of those students did continue in later years of the program so all students in this category are included in later impact analyses.
- Excluding the support contact participants in 2016-17, **the program enrollment was around 30 students each year**, or about 25% of the cohort of students at KCAPA. This enrollment was lower than the target planned at the outset of the program.
- Ten or fewer new students were recruited in each of the years, 2017-18 through 2019-20, following the launch of the program in 2016-17.

Though most Éxito students (64%) participated only during a single year and nearly half (44%) for 25 or fewer times over the course of four years, some students had very high levels of sustained participation.

With Éxito programming conducted most school days, participating students could take part in over 150 touch points in a single school year. The figures below detail how frequently and for how long students actually participated in Éxito during the study period. Figure 2 demonstrates longevity in the program by showing the number of years students had at least one touchpoint with the Éxito program.[18] Figure 3 shows the frequency of interaction by showing the total number of touchpoints each student had over the four years of the study, grouped into increments of 25 touchpoints.

Figure 2. Number of participants with 1-4 years of participation in Éxito, 2016-17 through 2019-20
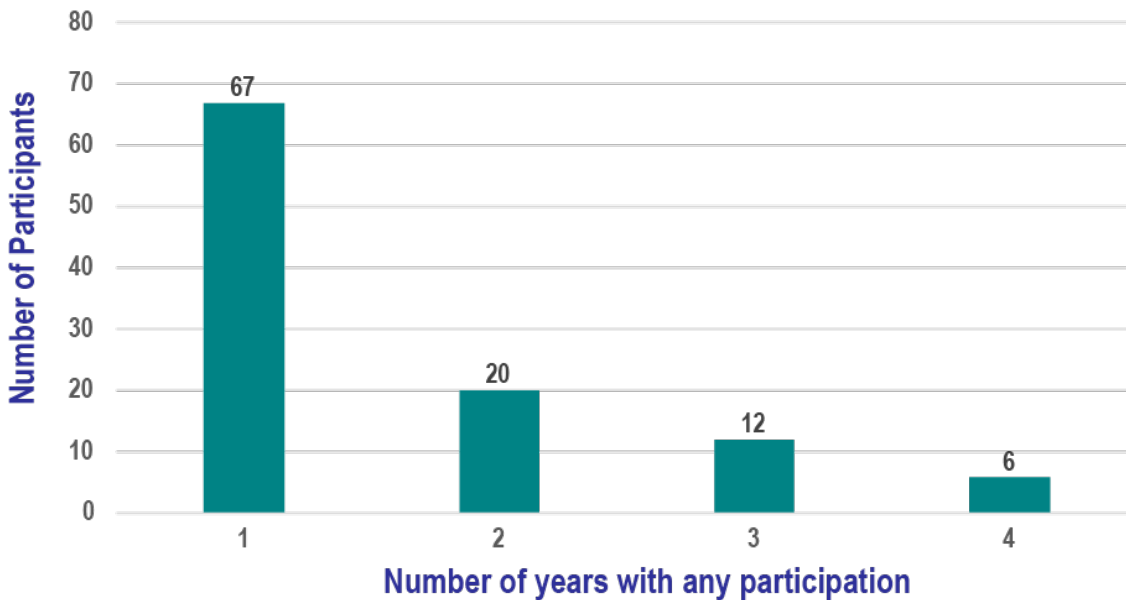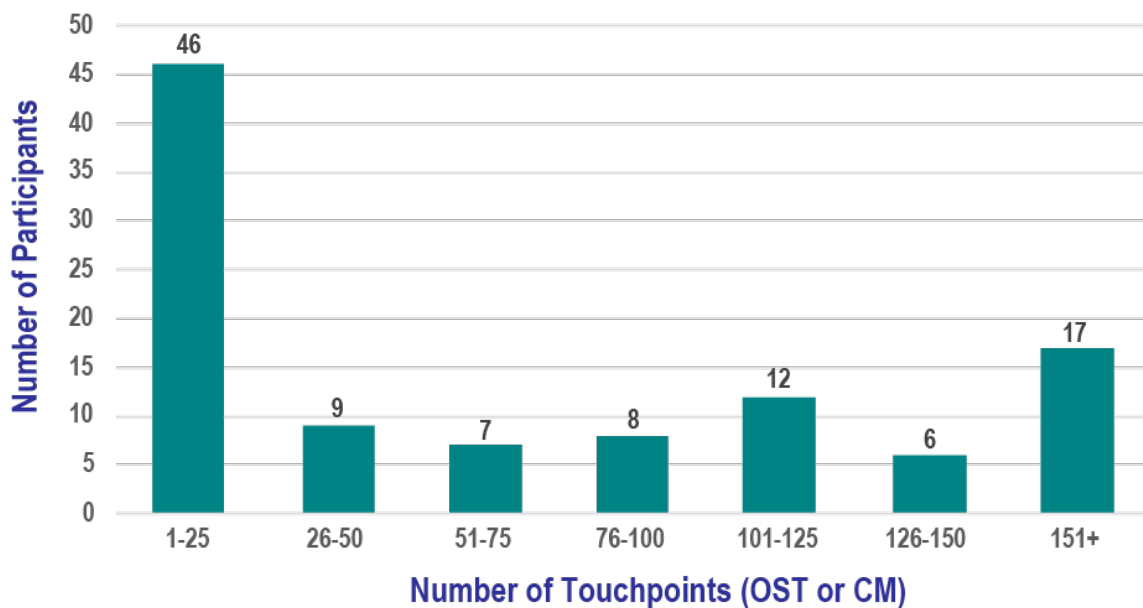

Figure 3. Number of Participants by number of touchpoints in any Éxito activity, 2016-17 through 2019-20

Note: Data source: Éxito program participation data, compiled by Congreso.

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18 We use "touchpoints" here instead of "days" because a student may have met with a case manager and attended the afterschool program on the same day. That would count as two touchpoints.

Notably:

- Year-to-year sustained participation was low on average. Many participants (64%) were not retained in the program over multiple years. Nearly half of participants (46 of 105) had 25 or fewer touchpoints over 4 years.
- A core contingent of students, however, had strong participation. One-third of participants (35 of 105) had more than 100 touchpoints. More than one-third of participants (36%) had at least two years of participation.
- In addition, a few students had very strong participation. Nine participants (9%) had 200 or more touchpoints and six (6%) participated in all 4 years of the program.

How did the outcomes of participants compare to non-participating students?

Éxito focuses on curbing school-leaving and raising the graduation rate. Did Éxito succeed at KCAPA? Should the program be replicated or aspects of it borrowed to impact graduation rates with other students or at other schools? To answer those questions, the remainder of this report focuses on the academic and behavioral outcomes of participating students. As described in the Study Design section of this report, and further within Appendix A, we evaluated the impact of the program via a quasi-experimental design comparing the outcomes of participants to a group of matched comparison students.

Éxito participants had significantly higher graduation and on-track rates and better credit accumulation throughout high school compared to matched comparisons, but no significant impacts were found on rates of school-leaving or GPAs in English and math courses.

Through linear and logistic regression analyses, we found statistically significant impacts on three key academic outcomes: graduation, on-track to graduation, and credit accumulation over the course of high school. Table 5 below shows the marginal difference in each academic outcome studied, meaning the difference in the regression-adjusted values for treatment and control students, at different time periods over the students' high school years. Full regression tables can be found in Appendix B.

Table 5. Marginal difference in academic outcomes between Éxito participants and comparisons after 1-4 years of high school

Outcome	Marginal difference (participants minus comparisons) after				
	1 year of HS	2 years of HS	3 years of HS	3.5 years of HS[19]	4 years of HS
Probability of graduating on time	n/a	n/a	n/a	n/a	15%**
Probability of being on-track to graduation	15%**	25%***	14%**	23%***	n/a
Credits accumulated in English and math	0.21**	0.41***	0.55***	0.12	n/a
Probability of having dropped out	n/a	-3%	-3%	-5%	n/a
GPA in English and math courses	n/a	-0.20	-0.05	-0.01	n/a

Notes: Marginal differences based on impact estimates from linear/logistic regressions controlling for number of years enrolled in KCAPA, gender, race/ethnicity, ELL status, IEP status, low-income status, and over age status, on a sample of 75 participants and a matched

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19 With the exception of graduation, outcomes were analyzed midway through the final year of high school, given the disruption caused in that year by the COVID pandemic for the treatment cohort.

Table 5 shows:
- **Éxito participants had significantly higher rates of graduation, on-track status, and credit accumulation, compared to matched comparisons.**
  - Participating students were 15 percentage points more likely to graduate by the end of the study period compared to similar non-participating peers.
  - Participating students were 14-25 percentage points more likely than matched comparisons to be on track in each year of high school, impacts similar to or higher than that seen on graduation. This is particularly important considering the disruption COVID-19 might have caused on graduation of the target cohort. The fact that the on-track data, captured before the COVID-19 pandemic struck which might have had an impact on graduation of the treatment cohort, shows a similar degree of impact demonstrates that the difference seen in graduation rate is not solely due to any pandemic-induced changes to graduation requirements.
  - Participating students accumulated significantly more credits in English and math over each of the first three years of high school. After 3.5 years of high school, the credit accumulation difference narrowed and was no longer significant.
- **No significant impacts were detected on rates of school-leaving or GPAs earned in English and math.**
  - Participating students were 3-5 percentage points less likely to leave school without a diploma by the end of each year studied, but the difference was not statistically significant. Overall, school-leaving rates were low among the studied KCAPA cohorts, meaning it would be difficult to find a significant difference.
  - Participating students had slightly lower GPAs compared to control students, but the difference was not statistically significant. Students could have received more credits but with lower GPAs (as shown here) if they passed with comparatively lower grades but took more credits in those subjects. (For example, Student A could have taken 2 English courses in year 1, earning B's in both, while Student B could have taken just one course and received an A.)

Éxito participants had similar behavioral outcomes as non-participating students.

In the table below, we examine the regression-based marginal differences for two behavioral outcomes: school attendance and receipt of any suspensions. Once again, the marginal difference is the regression-adjusted value for participating students minus those for matched comparison students. Positive numbers indicate higher values for participating students.

Table 6. Marginal difference in behavioral outcomes between Éxito participants and comparisons after 1-4 years of high school

Outcome	Marginal difference (participants minus comparisons) after			
	0.5 years of HS	1.5 years of HS	2.5 years of HS	3.5 years of HS
Attendance rate	3.2%	5.7%**	4.0%	0.0%
Probability of having received any suspensions	2%	4%	8%	6%

Table 6 shows:

- Significant, positive impacts were found on attendance during the second year of high school, with participating students attending at rates nearly 6 percentage points higher than control students. Other years showed no significant differences in attendance between participants and matched comparisons.
- Participating students had slightly higher rates of suspensions, but those differences were not statistically significant. This may have come in part from recruitment efforts, as students were sometimes referred to the Éxito program due to behavioral concerns.

Did the impact of the program vary by the type or amount of attendance?

The data presented above paints an encouraging picture of the impact the Éxito program had on participating KCAPA students. But did it matter if a student received case management supports or if they attended the afterschool program? And did the effects seen on student outcomes vary by number of times they received case management supports and/or participated in the afterschool program? The following section digs deeper into these questions by analyzing the dosage impacts of the program.

Case management had a larger effect on student outcomes than afterschool attendance alone.

In an effort to understand which program components were most impactful on student outcomes, the following analysis separates out the participating students into two groups: those who only attended the afterschool program and those who received case management services.[20] Students who received case management services were identified as potentially benefitting from services when they were failing core courses, had poor attendance or tardiness issues, or had behavioral issues in school. Students were typically referred to the case manager by the principal, teachers, or the truancy coordinator, but sometimes the case manager identified the students themselves from reviewing school data. This identification of need makes the two subgroups different from each other and we know from our prior analyses (see Table 4) that the students who received case management services were more often Hispanic, female, and EL than those who only participated in the afterschool program.

The differences in these subgroups and the lack of pretreatment academic and behavioral outcomes data means we cannot conclusively separate the impact of the Éxito program from any differences in the groups of students who participated from those who did not. We did, however, conduct exploratory analyses which controlled for the differences that we could observe, specifically the demographics and years at KCAPA. Table 7 reports the best estimate of the impact of each participation type on student outcomes, given the data available.[21] The *difference* between the values in each column illustrates which type of participation had a larger impact.

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20 The vast majority of the students who received case management (all but one) also attended the afterschool program.
21 We are only reporting on these outcomes starting in the students' third year of high school because some of the students did not participate until that year. Restricting the outcomes to this time frame means all participants had at least some involvement with the program by the time these outcomes were measured.

Table 7. Marginal difference in academic and behavioral outcomes between Éxito participants and comparisons after 3-4 years of high school, by type of participation

Academic Outcomes	Timeframe	Marginal difference (participants minus comparisons)	
		Afterschool only participants (N=27)	Afterschool plus case management participants (N=48)
Probability of graduating	After 4 years of HS	14%	16%**
Probability of having dropped out	After 4 years of HS	-1%	-9%
Probability of being on-track	After 3 years of HS	0%	20%**
	After 3.5 years of HS	10%	29%***
Number of credits accumulated in English and math	After 3 years of HS	0.3	0.7***
	After 3.5 years of HS	-0.1	0.2
Behavioral Outcomes			
Attendance rate	In the 3rd year of HS	-0.9%	6.3%**
	In the 4th year of HS	-4.0%	1.5%
Probability of having ever been suspended	After 2.5 years of HS	14%**	3%
	After 3.5 years of HS	11%	3%

Notes: Marginal differences based on impact estimates from linear/logistic regressions controlling for number of years enrolled in KCAPA, gender, race/ethnicity, ELL status, IEP status, low-income status, and over age status, on a sample of 75 participants and a matched comparison group of 75 non-participants. Statistical significance denoted by: ** p <0.05; *** p<0.01. Data source: SDP administrative data and Éxito participation data

Notably:
- **Case management appeared to have the strongest impact on on-track rates.** Case management students were 20% and 29% more likely than matched comparisons to be on-track at the end of 3 and 3.5 years of high school, respectively. Afterschool only participants, in contrast, had the same likelihood of being on-track after 3 years of high school as comparison students and were 10% more likely to be on-track after 3.5 years, but that difference was not significant.
- **Both case management students and afterschool program students had higher rates of graduation than their matched comparisons, but the difference was only statistically significant for case management students.** Case management students were 16% more likely to graduate on time, which was significant at the 5% level.
- Case management students had higher rates of attendance than their matched comparisons, while afterschool only students had marginally lower rates of attendance than their comparisons. However, only one of the values (for case management students in the 3rd year of high school) was statistically significant.
- The only significant difference found between students who only participated in the afterschool program and comparison students was in whether they had received a suspension 2.5 years into high school. Afterschool participants were 14 percentage points more likely to have been suspended than the comparison group students. Suspension rates were also slightly larger for case management students compared to their matched comparisons, but the differences were smaller and not significant. This may be because students were recruited to the program based on having early warning indicators of needing support and/or referrals by the principal. The receipt of a suspension may have been an indicator of a student needing additional support.

Students with moderate to high participation in Éxito had higher graduation rates, on-track rates, and credit accumulation towards the end of high school, compared to non-participants.

In addition to what type of programming a student participated in, we also wanted to test the impact that the amount of participation had on students' academic and behavioral outcomes. With the knowledge that case management is a more intensive interaction with students, and the confirmation provided by the prior analysis that it also had more of an impact on student outcomes than afterschool programming alone, we conducted this analysis by multiplying the number of case management touchpoints by two and adding that to the number of afterschool program days attended. This gives case management touchpoints double the weight of an afterschool day in this analysis. We then broke participating students up into quartiles based on their weighted attendance, as described in Table 8.

Table 8. Quartiles of participating students by the weighted attendance variable

Quartile	Number of students	Statistics of weighted attendance variable within the quartile group		
		Range	Mean	Standard deviation
1	19	1 – 8	2.4	2.2
2	19	9 – 80	46.1	25.3
3	19	81 – 199	139.9	33.7
4	18	200 – 488	283.9	80.2

Notes: Weighted attendance variable was constructed by multiplying the number of case management touchpoints by two and adding that to the number of afterschool program days attended. Case management was given double the weight of an afterschool program day because of the greater impact found of those services (see Table 7).

Using these quartile groups, we performed regression analyses to assess the impact of different degrees of participation in the Éxito program. Table 9 shows these regression results by displaying the marginal difference between participating students in each group and those of the non-participating students. Once again, as described in the limitations section above, these results should be interpreted as exploratory and correlational given the small sample size and lack of pre-treatment outcome measure data.

Table 9. Marginal difference in academic and behavioral outcomes between Éxito participants and comparisons after 1-4 years of high school, by quartile of weighted attendance

Outcome	Timeframe	Marginal difference (participants minus comparison)			
		1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
Probability of graduating	4 years	13.1%	8.1%	19.4%*	36.4%[i]
Probability of being on-track	3 years	8.1%	9.3%	19.6%*	18.8%
	3.5 years	2.3%	30.1%**	32.6%***	23.5%*
Number of credits accumulated in English and math	3 years	0.32	0.79**	0.58*	0.52*
	3.5 years	-0.25	0.14	0.28	0.27
Attendance rate	2.5 years	-1.1%	3.9%	7.4%*	5.0%
	3.5 years	-5.7%	3.1%	2.3%	-0.8%
Probability of having dropped out	4 years	-2.0%	-13.4%	7.0%	-9.1%
Probability of having ever been suspended	3 years	10.2%	13.6%	10.2%	0.7%
	3.5 years	7.7%	10.1%	28.5%*	-2.2%

Notes: Marginal differences based on impact estimates from linear/logistic regressions controlling for number of years enrolled in KCAPA, gender, race/ethnicity, ELL status, IEP status, low-income status, and over age status, on a sample of 75 participants and a matched comparison group of 75 non-participants. Statistical significance denoted by: * p <0.10; ** p<0.05; *** p<0.01. i means the p-value was not produced because the outcome was perfectly predicted for this group of students, specifically, all students in the fourth quartile graduated. Data source: SDP administrative data and Éxito participation data

Table 9 displays exploratory findings that indicate:

- Éxito had more of an effect on participants with moderate, high, and very high participation (Quartiles 2-4). Compared to non-participants, moderate, high, and very high Éxito participants:
  - Were significantly more likely to have been on track to graduate 3.5 years through high school, with differences ranging from 24 to 33 percentage points.
  - Had significantly higher rates of credit accumulation through 3 years high school.
  - Had graduation rates that were 19-36 percentage points higher, though the difference was not significant for moderate participants (quartile 2).
- Students who only participated in Éxito a few times (Quartile 1) had outcomes that were not statistically or substantially different from non-participants.
- No statistically significant differences were found on the probability of leaving school.
- Students with high Éxito participation (Quartile 3) showed a higher suspension rate compared to non-participants.

How did Éxito impact students most at risk of not graduating?

Since the Éxito program was designed to prevent youth leaving school without a diploma, it is important to understand how participation in the program impacted students most at risk of not graduating from high school. For the purposes of this analysis, we defined the most at-risk students as those who were off-track to graduation after their first year of high school. District-wide, prior analyses have found that students off-track after their first year of high school had graduation rates at least 40 percentage points lower than their on-track peers, making them an ideal target for an intervention aimed at preventing school-leaving.[22] The analyses below examine the differences in graduation rates for on- and off-track Éxito participants.

Éxito was highly effective at getting students back on track to graduation after falling off track during their first year of high school.

To assess the impact of the program on on- and off-track students, we conducted as two different regressions: one with the sample of participating and non-participating students who were off-track after their first year of high school, and one with those who were on-track. Table 10 displays the results of these regressions with the marginal difference between the adjusted graduation rates of participants and control students, as well as the sample size used in each regression.

Table 10. Marginal difference in graduation rates between Éxito participants and comparisons after 4 years of high school, by on-track status at the end of the first year of high school

Sample	Marginal difference (participants minus comparisons)	Sample size[23]	
		Participants	Non-participants
Off-track students	37%**	19	26
On-track students	8%	53	43

*Notes: Marginal differences based on impact estimates from logistic regressions controlling for number of years enrolled in KCAPA, gender, race/ethnicity, ELL status, IEP status, low-income status, and over age status, on a sample of 75 participants and a matched comparison group of 75 non-participants. Statistical significance denoted by: * p <0.10; ** p<0.05; *** p<0.01. Data source: SDP administrative data and Éxito participation data*

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22 1.Wills, T. *Defining 9th Grade Success: A New 9th Grade On Track Definition*. https://www.philasd.org/research/wp-content/uploads/sites/90/2018/05/On-Track-Focus-Brief_May-2018.pdf (2018).

23 The sample for this analysis was restricted to those students who had data on their on-track status at the end of their first year of high school. This included 72 of the 75 participating students and 69 of the 75 non-participating students who were included in the main impact analysis.

Table 10 shows:
- Narrowing the gap in graduation rates of off-track students, off-track Éxito students were 37 percentage points more likely to graduate on time, compared to the matched comparison students who were also off track.
- The difference of 8 percentage points in graduation rates between on-track Éxito participants and a matched comparison group of non-Éxito on-track peers was not statistically significant.

Conclusions and Recommendations

This study examined the impact that Congreso's Éxito program, which included an afterschool program and case management services, had upon participating Kensington CAPA students' academic and behavioral outcomes during high school. The study covered the 2016-17 through 2019-20 school years, the target cohort's high school years, and compared the outcomes for the target cohort to matched comparison students from the preceding two cohorts of students at Kensington CAPA.

These results show that the Éxito program is a promising model to affect high school graduation rates and address some of the systemic barriers that cause students to leave school prior to graduation. Participants showed significantly higher graduation rates, compared to matched comparison students in the two preceding cohorts at the same school. Participants also saw better outcomes in measures directly tied to graduation, like on-track rates and credit accumulation. Minimal or no impacts were found upon measures of GPA, rates of school-leaving, attendance, and receipt of suspensions.

Because of the patterns seen in the studied cohorts, we recommend the following:

Look for opportunities to expand the Éxito program in current and additional schools. Based on these results, combined with those found when studying the implementation of Éxito at Edison High school in 2008-2013,[24] there is a compelling case that the program had a significant effect on the graduation outcomes of participating students. This is in line with prior literature which shows that programs designed to more comprehensively address student needs have stronger impacts on helping youth reach graduation. Therefore, we recommend continuing to operate Éxito in current host schools while also looking for additional schools where these services could help support students. When identifying new schools for implementation, Congreso should prioritize schools with high rates of students who are off-track after their first year of high school, as this is a strong indicator of risk of leaving school prior to graduation and we found that the risk was greatly reduced among Éxito participants. Given the small sample size in both of these studies and the relatively small cohort size of the Kensington CAPA school, expanding to additional schools and tracking the impacts of the program could help to further the case that Éxito positively impacts graduation rates.

Maintain a focus of the program on case management supports. Our findings show that case management participation had a larger impact on student outcomes than afterschool participation alone. While the sample size did not allow a statistical test of if case management in isolation would be an effective intervention, we would not recommend changing that approach. The combination of case management targeting specific students when they have particular need for 1:1 support, and the afterschool program as a reliable format for additional relationship building with the case manager and peers has demonstrated effectiveness in this study and the literature more broadly.[25] Thus, continuing to support students in these two ways, and maintaining a specific focus on case management would be the best approach to build on these results.

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24 Leow, Hartmann, & Barnes, 2014.
25 Wilkins & Bost, 2015; Mac Iver, 2011

Value depth of participation over breadth of participants. In addition to the difference in impact based on how a student participated, we also found stronger effects for students who had higher degrees of participation. The difference in impacts between those who attended just a few days and those who attended more was striking and highlights the need to focus on intensity of participation more than enrolling large numbers of students. With more participation from individual students, comes the ability for those students to make genuine relationships with the adults running the program and their peers participating with them. It's those relationships that many other reports have found can make a difference in persistence through and graduation from high school.[26] Rather than risk watering down those relationships and the program by striving for larger cohorts, future iterations of Éxito should maintain a focus on depth of participation for the students that have joined the program.

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26 Cohen, S. (2004). *Social relationships and health.* American Psychologist, 59(8), 676.; National Scientific Council on the Developing Child. (2004). *Young children develop in an environment of relationships.* Working Paper 1. Harvard University, Center on the Developing Child. Retrieved from https://developingchild.harvard.edu/wp-content/uploads/2004/04/Young-Children-Develop-in-an-Environment-of-Relationships.pdf; Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High risk children from birth to adulthood.* Cornell University Press.

Appendix A. Methods Appendix

Key methodological elements of the evaluation of the impact of Éxito on student outcomes are described below.

Quasi-Experimental Design with Matched Student-Level Comparisons

RFA applied a rigorous quasi-experimental design with a matched comparison group to estimate the impact of the Éxito program on student outcomes. In this design, we estimated the impact of the Éxito program by comparing average outcomes of Éxito participants (treatment group) to outcomes of similar students (comparison group) selected from two proceeding cohorts attending KCAPA. By selecting comparison students within the same school where treatment students attended, we can effectively rule out (or control for) school effects on student outcomes. Since Éxito program participation was voluntary, the treatment group was not a random sample but a self-selected sample. We improved the comparability between the Éxito participation group and comparison group by identifying matched comparisons among students in the two proceeding cohorts. Rather than comparing Éxito participants' outcomes to that of all students in the comparison cohorts, we used a propensity score matching (PSM) approach to identify a group of students within the comparison cohorts that are more closely matched to the Éxito participants. We identified matches for students in two separate groups: (a) students who entered KCAPA in 9th grade and (b) students who entered KCAPA in 10th or 11th grade. For both sets of students we matched treatment and comparison students on race/ethnicity, gender, low-income status, and the total number of years the student was enrolled at KCAPA. Given the larger sample size, we were able to use additional matching variables for the students who entered KCAPA in 9th grade, specifically English Learner status, IEP status, and being over age for grade in 9th grade. Table A1 compares the average demographic characteristics and years enrolled at KCAPA between Éxito participants and matched comparison students.

Table A1. Comparison of average student characteristics and years enrolled in KCAPA between Éxito participants and matched comparison students, including both initial 9th graders and joiners

	Treatment (N=75)	Matched Comparison (N=75)	Diff	p-value on Mean difference
% Female	53.3	56.0	-2.7	0.74
Race/Ethnicity				
% Black	33.3	32.0	1.3	0.86
% Hispanic	64.0	65.3	-1.3	0.86
% Other	2.6	2.6	0.0	1.00
% ELL	24.0	21.3	2.7	0.70
% with an IEP	22.7	21.3	1.3	0.84
% low income (Free from tape)	66.7	69.3	2.7	0.73
% overage when starting 9th grade (>15 years old)	10.7	6.7	4.0	0.38
Years enrolled at KCAPA	3.4	3.5	-0.04	0.79

*Note: * indicates a difference from the treatment group at the 5% level (using t-tests or z tests)*

As Table A1 shows, due to propensity score matching, Éxito participants and matched comparison students were similar in terms of the demographic characteristics and years enrolled in KCAPA.

Student Outcome Measures

The key outcome measures include both academic and behavioral metrics measured throughout the four span of high school years. Table A2 presents each student outcome measure and compares their averages between Éxito participants and matched comparison students over time.

Table A2. Comparison of average student outcomes between Éxito participants and matched comparison students, including both initial 9th graders and joiners

	Timeframe	Treatment	Matched Comparison	Diff	p-value on Mean difference
Academic Outcomes					
Probability of graduating	After 4 years of HS	80.0%	66.7%	12.3%	0.060
Probability of having dropped out	After 1 year of HS				
	After 2 years of HS	4.1%	4.3%	-0.3%	0.930
	After 3 years of HS	9.5%	12.2%	-2.7%	0.597
	After 4 years of HS	12.7%	16.4%	-3.8%	0.523
Probability of being on-track	After 1 year of HS	73.6%	62.3%	11.3%	0.151
	After 2 years of HS	56.3%	34.8%	21.6%*	0.011
	After 3 years of HS	43.8%	31.5%	12.3%	0.124
	After 3.5 years of HS	63.5%	43.2%	20.3%*	0.013
Number of credits accumulated in English and math	After 1 year of HS	1.9	1.7	0.2	0.054
	After 2 years of HS	3.9	3.5	0.4**	0.010
	After 3 years of HS	5.9	5.4	0.4*	0.045
	After 3.5 years of HS	7.0	6.9	0.0	0.854
Behavioral Outcomes					
Attendance rate	In the 1st year of HS	91.7%	88.7%	3.0%	0.129
	In the 2nd Year of HS	90.4%	85.3%	5.2%*	0.035
	In the 3rd year of HS	90.4%	86.5%	3.9%	0.146
	In the 4th year of HS	88.7%	88.9%	-0.2%	0.920
Probability of having ever been suspended	After 1 year of HS	5.7%	2.9%	2.9%	0.400
	After 2 years of HS	10.8%	5.6%	5.2%	0.258
	After 3 years of HS	16.0%	8.0%	8.0%	0.132
	After 3.5 years of HS	17.3%	10.7%	6.7%	0.239

Notes: * indicates a difference from the treatment group at the 5% level (using t-tests or z tests)
** indicates a difference from the treatment group at the 1% level (using t-tests or z tests)

Analytical Model

We use the following logit model to estimate the impact of participation in the Éxito program on binary student outcomes:

$$logit(y_i) = \alpha + \beta\text{ÉXITO}_i + \gamma X_i + \varepsilon_{ij}$$

where y_{ij} is the outcome for student i ; ÉXITO denotes whether the individual is in the treatment group (ÉXITO = 1) or comparison group (ÉXITO = 0); β represents an estimate of the impact of Éxito program participation; and X is a vector of student-level covariates including both demographic characteristics and years in KCAPA. In this model, the coefficient β indicates the impact of the Éxito program in terms of log of odds or logit. For easier interpretation of the estimated program impact, we convert the logit coefficients into predicted probabilities using Stata's margins command. For the continuous outcome measures, we estimated the OLS model.

Appendix B. Regression Tables

Table B1. Multivariate logistic regressions of graduation, on-track status, and school-leaving on treatment status and covariates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outcome	Graduated	On track				Left school without a diploma		
Timeframe after beginning of high school	4 years	1 year	2 years	3 years	3.5 years	2 years	3 years	4 years
Treatment	1.275**	0.862**	1.155***	0.774**	1.155***	-0.655	-0.413	-0.578
	(0.509)	(0.420)	(0.384)	(0.394)	(0.387)	(1.009)	(0.619)	(0.559)
Number of years at KCAPA	1.529***	0.461**	0.822***	0.786***	0.613***	-1.551***	-1.199***	-1.029***
	(0.299)	(0.230)	(0.306)	(0.303)	(0.234)	(0.531)	(0.291)	(0.264)
Female	0.468	0.286	-0.0726	0.854**	0.399	-0.410	-0.259	-0.446
	(0.509)	(0.431)	(0.395)	(0.418)	(0.397)	(0.978)	(0.691)	(0.603)
Black	-14.43	-13.96	-0.992	-0.801	-0.410	12.55	12.97	13.35
	(2,116)	(799.7)	(1.249)	(1.275)	(1.300)	(4,466)	(1,682)	(1,300)
Hispanic	-14.19	-13.57	-0.957	-0.971	0.319	13.50	12.90	12.80
	(2,116)	(799.7)	(1.245)	(1.262)	(1.295)	(4,466)	(1,682)	(1,300)
English Learner	0.0774	-0.181	-0.405	-0.883*	-1.264**		-0.915	-0.420
	(0.633)	(0.523)	(0.480)	(0.512)	(0.493)		(0.953)	(0.814)
Special Education student	-1.382**	-1.221***	-1.037**	-1.834***	-1.426***	0.589	0.390	0.767
	(0.544)	(0.462)	(0.498)	(0.602)	(0.487)	(1.174)	(0.675)	(0.597)
Low-income	-0.852	-0.190	0.299	-0.0252	-0.722*	1.220	0.734	0.305
	(0.568)	(0.456)	(0.428)	(0.437)	(0.427)	(1.325)	(0.733)	(0.605)
Over age for grade	-0.145	-1.578**	-0.516	0.436	-0.289		0.897	0.782
	(0.826)	(0.797)	(0.767)	(0.813)	(0.717)		(0.950)	(0.850)
Constant	10.38	12.89	-2.626	-2.827	-1.733	-11.83	-11.62	-11.43
	(2,116)	(799.7)	(1.746)	(1.744)	(1.580)	(4,466)	(1,682)	(1,300)
Observations	150	141	140	146	148	101	148	144
Pseudo-R2	0.329	0.161	0.133	0.179	0.171			

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1*

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Table B2. Multivariate linear regressions of credit accumulation and GPA in English and math courses on treatment status and covariates

	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Outcome	Credits earned in English and math				GPA in English and math		
Timeframe after beginning of high school	1 year	2 years	3 years	3.5 years	2 years	3 years	3.5 years
Treatment	0.209**	0.414***	0.553***	0.124	-0.229	-0.0363	0.00258
	(0.0949)	(0.136)	(0.199)	(0.201)	(0.166)	(0.163)	(0.149)
Number of years at KCAPA	0.0663	0.131	0.337***	0.289**	0.318***	0.248**	0.250**
	(0.0539)	(0.0843)	(0.124)	(0.122)	(0.118)	(0.105)	(0.0977)
Female	0.0259	0.242*	0.146	0.0762	0.125	0.256	0.208
	(0.101)	(0.145)	(0.208)	(0.211)	(0.176)	(0.170)	(0.157)
Black	-0.204	-0.282	-0.286	0.0471	-0.667	-0.354	-0.0920
	(0.301)	(0.421)	(0.598)	(0.594)	(0.499)	(0.487)	(0.430)
Hispanic	-0.104	-0.218	-0.0218	0.314	-0.613	-0.329	-0.0814
	(0.298)	(0.416)	(0.594)	(0.588)	(0.494)	(0.484)	(0.426)
English Learner	0.146	0.0139	-0.0458	0.0603	-0.225	-0.0127	-0.0483
	(0.121)	(0.172)	(0.249)	(0.252)	(0.208)	(0.205)	(0.184)
Special Education student	-0.129	-0.419**	-1.021***	-0.717**	-0.749***	-0.557**	-0.481**
	(0.124)	(0.183)	(0.267)	(0.279)	(0.218)	(0.221)	(0.212)
Low-income	-0.169	-0.120	-0.204	-0.312	-0.439**	-0.414**	-0.470***
	(0.104)	(0.150)	(0.219)	(0.223)	(0.184)	(0.179)	(0.165)
Over age for grade	-0.179	-0.451*	-0.798**	-0.315	-0.385	-0.450	-0.410
	(0.176)	(0.253)	(0.397)	(0.405)	(0.305)	(0.336)	(0.308)
Constant	1.705***	3.292***	4.554***	5.900***	1.988***	1.664***	1.511***
	(0.366)	(0.533)	(0.765)	(0.758)	(0.686)	(0.633)	(0.571)
Observations	142	133	128	123	128	126	117
R-squared	0.104	0.194	0.268	0.136	0.277	0.184	0.193

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table B3. Multivariate linear regressions of attendance rates and logistic regressions of having received any suspensions on treatment status and covariates

	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
Outcome	Attendance rate				Receipt of any suspensions			
Timeframe after beginning of high school	0.5 years	1.5 years	2.5 years	3.5 years	0.5 years	1.5 years	2.5 years	3.5 years
Treatment	3.177	5.668**	3.997	-0.0296	0.659	0.679	0.822	0.579
	(1.945)	(2.276)	(2.504)	(2.292)	(0.933)	(0.674)	(0.559)	(0.505)
Number of years at KCAPA	1.238	4.689***	5.163***	1.957	-0.656*	-0.765***	-0.566**	-0.484**
	(1.134)	(1.420)	(1.547)	(1.487)	(0.389)	(0.282)	(0.250)	(0.238)
Female	0.531	2.617	-2.933	-0.109	0.632	-0.565	-1.295**	-1.063**
	(2.060)	(2.397)	(2.645)	(2.379)	(1.019)	(0.693)	(0.616)	(0.541)
Black	-3.604	-4.596	-6.050	4.135	13.32	14.81	14.05	-0.922
	(6.956)	(7.143)	(7.839)	(6.849)	(1,851)	(4,873)	(1,848)	(1.312)
Hispanic	-2.742	-0.140	-1.980	6.781	13.54	14.90	13.89	-1.467
	(6.923)	(7.090)	(7.761)	(6.799)	(1,851)	(4,873)	(1,848)	(1.306)
English Learner	0.713	-1.620	-2.003	-3.107	1.175	-0.347	0.274	0.255
	(2.498)	(2.876)	(3.160)	(2.855)	(1.150)	(0.896)	(0.669)	(0.657)
Special Education student	-4.950**	-4.048	-9.393***	-0.123	0.400	0.223	0.0753	-0.0881
	(2.369)	(2.807)	(3.107)	(2.965)	(0.986)	(0.717)	(0.618)	(0.599)
Low-income	-2.897	-8.140***	-2.745	-5.340**	-1.890*	-0.436	0.274	0.314
	(2.185)	(2.534)	(2.761)	(2.579)	(0.975)	(0.690)	(0.594)	(0.551)
Over age for grade	-3.402	4.406	-4.853	1.609	0.760	-0.463	0.173	-0.000731
	(3.685)	(4.305)	(4.701)	(4.882)	(1.370)	(1.210)	(0.793)	(0.762)
Constant	90.31***	74.94***	77.54***	80.30***	-14.70	-14.60	-14.31	0.896
	(8.262)	(9.015)	(9.809)	(8.845)	(1,851)	(4,873)	(1,848)	(1.567)
Observations	140	140	138	125	140	145	150	150
R-squared	0.094	0.215	0.200	0.063				

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1